

## REMARKS

Reconsideration of the subject patent application is respectfully requested.

The first issue raised by the Examiner in the Office Action pertains to the restriction requirement and the election without traverse of Group I, comprising claims 1-19 and 24-26. This election, without traverse, is hereby confirmed.

The second issue raised by the Examiner pertains to a 35 U.S.C. § 112 issue directed to claims 13 and 17. As for the claim 13 issue, claim 13 has been amended in a manner which will hopefully resolve the Examiner's concerns. As for claim 17, the required spelling correction has been made by amendment.

As for any prior art rejections, the Examiner has rejected claims 1, 17, and 24-25 under 35 U.S.C. § 102(a) as being clearly anticipated by Norville. Claims 1, 17, and 24-25 also stand rejected under 35 U.S.C. § 102(f) as being clearly anticipated by Norville. Claims 2-16, 18, 19, and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Norville. Claims 1-8, 13-15, 17-19, and 24-26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over either Flemings et al. or Kono and further in view of Winter et al. or JP 1-192,446. Claims 1, 17, 24, and 25 stand rejected under 35 U.S.C. § 102(e)/(f)/(g) as being clearly anticipated by Norville et al. ('824). Claims 2-16, 18, 19, and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Norville et al. ('824). Finally, claims 1-19 and 24-26 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 of co-pending application number 09/250,824. These various rejections will be discussed, group-by-group, beginning with the rejection of claims 1, 17, 24 and

25 under 35 U.S.C. § 102(a). In this rejection, the Examiner states that these claims are anticipated by the Norville article, specifically the figure on page 32 of that article. Under 35 U.S.C. § 102(a), the basis for a rejection is embodied in an invention disclosure or activity by another "before the invention thereof by the applicant for patent". In this regard, the Examiner is asked to consider that the "Norville" listed as an author of the cited article is the same "Norville" listed as an inventor in the provisional application (No. 60/075,023), the same "Norville" listed as an inventor in the parent application, U.S. Serial No. 09/250,824, and the same "Norville" listed as an inventor in the subject CIP patent application. Whatever is contained in the Norville article, it is impossible for an inventor to make a disclosure of his own invention BEFORE he has invented it.

Further, not only for this rejection but for any reliance on the Norville article as prior art, under any statutory section, the Examiner is reminded that the present patent application is a CIP of parent Serial No. 09/250,824 which has an actual filing date of February 17, 1999, but properly claims filing date priority back to provisional application No. 60/075,023. This provisional application has a filing date of **February 18, 1998**. The date on the Norville article is March 1998. Due to the claim of priority, the present patent application is entitled to the February 18, 1998 effective filing date for any and all subject matter disclosed in the provisional patent application. The Norville article which is relied upon by the Examiner is dated after Applicants' effective filing date and therefore cannot be "prior" art as to the provisional application subject matter. Any new matter which is disclosed in the subject CIP application is clearly not anticipated by anything in the Norville article, a point apparently confirmed by the Examiner based on the remaining rejections.

The Examiner is not permitted to guess, theorize, speculate, imagine, etc. when or if there might have been an earlier manuscript or draft for the published Norville article, such as suggesting that, with a March 1998 publication date, something would have had to have happened earlier. Even if there were an earlier draft for the Norville article, and there is no evidence there was, the Examiner would have to speculate as to what it might disclose and whether or not that earlier draft might have been available prior to February 18, 1998. However, more importantly than all of this dialogue is to understand that even if there were an earlier draft, it would not have been a "printed publication" in that form. As well, and to reinforce the point already made, we are talking about the same "Norville" beginning with the provisional application and continuing throughout the series of related applications. Consequently, whether or not there was an earlier draft of the article and regardless of what the Examiner might wish to speculate in this regard, it is impossible for an inventor to make a disclosure of his own invention BEFORE he has invented it. Accordingly, there is simply no basis in fact or theory for the Examiner to rely on the Norville article as prior art to the claimed invention, under any statutory section.

The rejection of claims under 35 U.S.C. § 102(f) is also improper, not only for all of the reasons set forth above, but additionally, for failing to meet the legal standards imposed on all Examiners under the MPEP. Looking initially at the text of MPEP §706.02(g), it states that "the Examiner must presume the applicants are the proper inventors unless there is proof that another made the invention and that applicant derived the invention from the true inventor". How can the same inventor, Norville, "improperly" take or derive something from himself? The absurdity of this situation

should be clear. Furthermore, even if the Examiner felt that different inventive entities were involved, such as new inventors being added for the new subject matter for the CIP, that is not how 35 U.S.C. § 102(f) is to be applied. It is clear that the Examiner does not have any “proof”, and this particular rejection under 35 U.S.C. § 102(f) is mere speculation and flawed at that. Additionally, the Examiner is asked to consider the text of MPEP § 2137 which pertains specifically to 35 U.S.C. § 102(f). There are references to the proper standard to be applied and references to applicable case law which the Examiner would be well advised to review. For example, “the mere fact that a claim recites the use of various components, each of which can be argumentatively assumed to be old, does not provide a proper basis for a rejection under 35 U.S.C. § 102(f)”. Ex parte Billottet, 192 USPQ 413, 415 (Bd. App. 1976). The concept of derivation requires complete conception “by another” and communication of that conception by any means to the party charged with derivation prior to any date on which it can be shown that the one charged with derivation possessed knowledge of the invention.

The “person” referenced in 35 U.S.C. § 102 is the CIP inventive entity. Obviously, not every joint inventor on every application must have contributed every single inventive feature detail, in exactly the same form, to exactly the same degree, and at exactly the same time. Not only is this virtually impossible to ever achieve with joint inventors, but it does not reflect the well-established law regarding joint inventors and CIP filings. The inventive entity for this CIP did invent the subject matter sought to be patented and any suggestion to the contrary is not only without evidence or proof, but is clearly improper.

It is impossible to comprehend how a joint inventor on a CIP application can be accused of effectively stealing the invention from himself, but that is exactly what a rejection under 35 U.S.C. § 102(f) means in this case or whenever an Examiner cites to an inventor's own work, which is not "prior art".

The rejection of claims 2-16, 18, 19, and 26 under 35 U.S.C. § 103(a) which is also based on the Norville article is improper for all of the reasons already advanced regarding this article, including the fact that it is the inventor's own work and the fact that it is not "prior" art. Further, strong objection is taken to the Examiner's one sentence conclusion that it would have been obvious to obtain optimal casting cycle times through routine experimentation. This conclusion is not supported in any tangible manner, except to apply the Examiner's own subjective opinion. While Examiners certainly have this right, it would be hoped that any expression of subjective opinions would have some measure of harmony or consistency with the facts and the generally accepted understanding of the field of technology. To the contrary, in this case, the extent of literature on semi-solid slurry die casting, the number of prior art patents, the overwhelming complexity of the process, the tremendous number of variables and critical parameters bluntly refute the accuracy and propriety of the Examiner's singular subjective opinion. For years, experts all over the world have worked with the semi-solid slurry technology and have not been able to optimize the process, depending of course on their definition of "optimize". If the cycle time issue is obvious, then all these years of work by all of these experts would have yielded something more tangible in the form of a clear cut outline, thoroughly documenting exactly what alloys should be used for what type of parts, what type of machinery should be used, what stirring and cooling methods

should be used, etc. In view of all the effort to date, if it was in fact obvious to optimize the cycle times, then you would expect to see some published record of what these times should be, covering all of the possible variables, and you would expect for this information to be well accepted by the industry. The Examiner is asked to produce some type of tangible prior art reference that validates the basis for this rejection, if the rejection is maintained, even though the Norville article is not "prior art".

The various rejections which rely on the parent patent application of Norville et al. are believed to be improper and should be withdrawn, for all of the same reasons which are advanced above regarding the reliance on the Norville article. One of the basic concepts of patent law in filing a CIP application and claiming priority to an earlier parent is to preclude that parent from becoming "prior art". Since the old subject matter in the CIP has the same effective filing date as the provisional application and the same effective filing date as the parent application, how can the parent application be "prior" art to the CIP as to this old subject matter? The parent application is not prior art because it is not "prior", and it is as simple as that. Since the parent application has not yet issued and is not yet published, the Examiner is asked to explain the "prior art" basis for citing the parent patent application.

With regard to any of the other sets of claim rejections based on the Norville et al. parent application, there remains absolutely no evidence or proof to warrant any type of rejection under 35 U.S.C. § 102(f). The simple fact that an inventor cannot improperly steal his own invention from himself makes any rejection of this type improper.

As for the provisional rejection, the Examiner is advised that the parent patent application is being allowed to go abandoned and thus this issue becomes moot.

Assuming that the Examiner agrees that (a) the cited Norville article cannot be prior art, because it is not “prior” and that (b) an inventor cannot improperly derive or steal an invention from himself, particularly when all inventive activity is commonly owned, then all rejections based on the Norville article must be withdrawn.

Further, assuming that the Examiner agrees that the cited parent application (Norville et al.) cannot be prior art, because it is not “prior”, then all rejections based on this parent patent application must be withdrawn. As indicated, the provisional double patenting rejection will become moot as the parent Norville et al. patent application is allowed to go abandoned.

With the two foregoing sets of assumptions, there remains only one substantive rejection and this is set forth in paragraph 12 of the Office Action. Specifically, claims 1-8, 13-15, 17-19, and 24-26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over either Flemings et al. ('544) or Kono ('526) and further in view of either Winter et al. ('210) or JP 1-192,446.

In the explanation of this rejection, the Examiner suggests that it would be obvious to replace the mechanical stirring devices of either Flemings et al. or Kono with the electromagnetic stirring devices of either Winter et al. or the Japanese reference. While this particular rejection is believed to oversimplify and to some extent trivialize the magnitude and complexity of such a task, it also says nothing about the numerous design and system modifications which would have to be made to even consider such a substitution. The number of critical design variables and the huge interrelation of these variables on one another is a strong indication that virtually nothing is “obvious” in this field of technology. Further, Applicants’ attorney did not find any suggestion in any of

the four references cited by the Examiner of making such a substitution. To the extent such a substitution would in fact be “obvious”, as it is now contended by the Examiner, one would have thought that one of the four inventive entities of these cited references would have provided some direction or suggestion as to how this could be done and why it would be of interest to do so. The fact that these four cited references are silent is a strong indication that the magnitude and complexity of the task takes it well beyond something which would be “obvious”.

Over the years the Court of Customs and Patent Appeals (CCPA) and more recently the Court of Appeals for the Federal Circuit (CAFC) have addressed the issue of what criteria is to be applied when combining two or more references under 35 U.S.C. §103. While the facts may differ from case to case and while the CAFC panel may change, the legal precedent established by the Board of Patent Appeals and Interferences and the CCPA has been followed and strengthened by the later cases of the CAFC.

Clearly and succinctly stated, before obviousness may be established, the examiner must show that there is either a suggestion in the art to produce the claimed invention or a compelling motivation based on sound scientific principles. Ex parte Kranz, 19 USPQ2d 1216, 1218 (Bd. Pat. App. & Inter., 1990). The case law makes it clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is vigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. C.R. Bard, Inc. v. M3 Sys., Inc., 157 F.3d 1340 (Fed. Cir. 1998). Obviousness cannot be established by combining the teachings of prior art in order to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. In re Geiger, 2 USPQ2d 1276 (Fed.



Cir. 1987). It is improper to reject the claimed invention for obviousness when nothing in the cited references, either alone or in combination, suggests or teaches the claimed invention. Evidence of teaching or suggestion is “essential” to avoid hindsight. In re Fine, 5 USPQ2d 1596 (Fed. Cir. 1988). Stated slightly differently, the mere fact that the prior art may be modified to reflect features of the claimed invention does not make modification, and hence the claimed invention, obvious unless the desirability of such modification is suggested by the prior art. In re Fritch, 23 USPQ2d 1780 (Fed. Cir. 1992).

It is generally accepted, however, that it is improper to change the basic principle under which the primary reference was intended to operate. In re Ratti, 123 USPQ 349 (CCPA 1959). It is not enough to pick out isolated features in earlier prior art patents, combine them in one particular way with the application of hindsight acquired only from the applicant’s own disclosure, and then say that it would have been obvious to select those particular features and to combine them in the particular way in which the applicant has. The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. There must be some teaching or suggestion in the references to support their use in the particular claimed invention. Smithkline  
Diagnostics, Inc. v. Helena Laboratories Corp., 8 USPQ2d 1468 (Fed. Cir. 1988).

There must be some logical reason apparent from positive concrete evidence in the record that justifies a combination of primary and secondary references. In re Regel, Buchel and Plempel, 188 USPQ 136 (CCPA 1975). It is insufficient to show merely that each separate element of a claimed combination can be found in one or various prior art

references. The mere fact that it is possible to find two isolated disclosures which might be combined in such a way to produce a new invention does not necessarily render such new invention obvious unless the prior art also contains something to suggest the desirability of the combination. In re Gergen, 11 USPQ2d 1652, (Fed. Cir. 1989).

It is impermissible within the framework of Section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. In re Wessslau, 147 USPQ 391, (CCPA, 1965), Bausch & Lomb v. Barnes-Hind/Hydrocurve, 230 USPQ 416 (CAFC, 1986). Without the benefit of applicant's disclosure, a person of ordinary skill in the art would not know what portions of the reference to consider and what portions to disregard as irrelevant, or misleading. In re Mercier, 185 USPQ 774 (CCPA, 1975). Combining prior art references without evidence of such a suggestion, teaching or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability – the essence of hindsight. Interconnect Planning Corp. v. Feil, 774 F2d 1132 (Fed. Cir. 1985).

With regard to the rejection of claim 1 and the reliance on either Flemings et al. or Kono in view of either Winter et al. or the Japanese reference, it is contended that the Examiner's § 103 rejection does not meet the legal standard for a proper obviousness rejection as outlined above. Beyond what the Examiner considers to be a somewhat simplistic substitution of an electromagnetic stirring device for a mechanical stirring device, the Examiner also concludes that other claimed features and relationships would be obvious. One difference here is that these claimed features and relationships are not disclosed in any cited reference. This is not a question of whether it would be obvious to

combine two or more references, this is a question of whether it would be obvious to create or invent something which does not presently appear in any of the references cited by the Examiner.

Specifically, the only "rejection" of claims 2-8 and 26 is based on the Examiner's subjective opinion that optimal casting cycle times can be readily derived through "routine" experimentation.

In order to deal with this issue, maybe we first need to decide what is meant by "routine". A couple of dictionary definitions include, "a customary or regular course of procedure" and "commonplace tasks". A further definition states "unimaginative procedure". It is hard to imagine, actually it is impossible to comprehend, that any part of a semi-solid slurry die casting procedure could be envisioned as comprising nothing more than "commonplace tasks" or "unimaginative procedures". The extensive literature on trials, tests, and experimentation and the differing opinions of experts all confirm that the time and experimentation required to arrive at desired cycle times is anything but "routine".

At a minimum, the Examiner is requested to provide a proper prior art reference that actually discloses the optimization of cycle times for this technology.

The new claims which are introduced by this Amendment recite other process steps associated with the present invention and these added steps are not found in any of the cited references and would not be obvious. Accordingly, new claims 31-38 are respectfully requested to be passed to issue along with claims 1-19 and 24-26. While the total number of claims remain the same in view of the claims that have been canceled and

the claims which have been added, the number of independent claims has increased by one (1) and a check for the additional filing fee is enclosed.

### CONCLUSION

Attached hereto are four (4) pages which present a marked up version of the changes made to this application by the current amendment. The first page of the four attached pages is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

Applicant has amended claims 1, 13, 17 and 18, canceled claims 20-23 and 27-30, and added new claims 31-38. Applicant respectfully requests a Notice of Allowance for pending claims 1-19, 24-26, and 31-38. The undersigned welcomes a telephonic interview with the Examiner, if the Examiner believes that such an interview would facilitate review of this Amendment Response.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION

On page 22, in the last paragraph of that page, at line 31, delete  
“Serial No. \_\_\_\_\_” and replace it with -- Serial No. 09/585,296 -- .

On page 24, in the third full paragraph of that page, at line 26, delete  
“Serial No. \_\_\_\_\_” and replace it with -- Serial No. 09/584,859 --.

On page 30, in the second full paragraph of that page, at line 12, delete  
“Serial No. \_\_\_\_\_” and replace it with -- Serial No. 09/585,060 -- .

On page 33, in the third full paragraph of that page, at line 18, delete  
“Serial No. \_\_\_\_\_” and replace it with -- Serial No. 09/585,502 -- .

IN THE CLAIMS

Please cancel claims 20-23 and 27-30, without prejudice.

Please amend claims 1, 13, 17, and 18 in the following manner:

1. (Amended) A method of producing on-demand, semi-solid material for a casting process, said method comprising the following steps:
  - heating a metal alloy until it reaches a molten state;
  - transferring an amount of said [molten] metal alloy to a vessel;
  - cooling said amount of [molten] metal alloy in said vessel;

applying an electromagnetic field to said amount of [molten] metal alloy for creating a flow pattern of said [molten] metal alloy within said vessel while said cooling continues in order to create a slurry billet; and

discharging said slurry billet from said vessel into a shot sleeve of a casting machine.

13. (Amended) The method of claim 1 [wherein said applying step is performed by] which further includes the step of moving said vessel into a stator before said transferring step is performed.

17. (Amended) The method of claim 1 wherein said stator is a multi-phase, multiple pole stator [using] causing circumferential flow in the [molten] metal alloy.

18. (Amended) The method of claim 1 wherein said stator is a multi-phase, multiple pole stator causing longitudinal flow in the [molten] metal alloy.

Please add the following eight claims as new claims 31-38:

-- 31. (New) A method of producing on-demand, semi-solid material for a casting process, said method comprising the following steps:  
heating a metal alloy until it reaches a molten state;  
transferring an amount of said metal alloy to a vessel;  
cooling said amount of metal alloy in said vessel;  
applying an electromagnetic field to said amount of metal alloy by the use of a stator for stirring said metal alloy within said vessel while said cooling continues in order

to create a slurry billet, a voltage being applied to said stator, the level of said voltage determining the stirring torque applied to said metal alloy;

changing the voltage level applied to said stator so as to change the stirring torque applied to said metal alloy; and

discharging said slurry billet from said vessel into a shot sleeve of a casting machine.

32. (New) The method of claim 31 wherein said voltage level is changed based upon the sensing of an electric load feedback signal.

33. (New) The method of claim 31 wherein said voltage level is changed based upon the sensing of a temperature measurement signal from said metal alloy.

34. (New) The method of claim 31 which further includes the step of changing the stirring torque applied to said metal alloy based upon the viscosity of said metal alloy in the vessel.

35. (New) A method of producing on-demand, semi-solid material for a casting process, said method comprising the following steps:

heating a metal alloy until it reaches a molten state;

transferring an amount of said metal alloy to a vessel;

assembling a covering cap to said vessel in order to permit the use of an inert gas to control contamination;

cooling said amount of metal alloy in said vessel;

applying an electromagnetic field to said amount of metal alloy by the use of a stator for stirring said metal alloy within said vessel while said cooling continues in order to create a slurry billet, a voltage being applied to said stator, the level of said voltage determining the stirring torque applied to said metal alloy; and

discharging said slurry billet from said vessel into a shot sleeve of a casting machine.

36. (New) The method of claim 35 which further includes the step of inserting a thermocouple through said covering cap and into said metal alloy for deriving temperature information from said metal alloy.

37. (New) A method of producing on-demand, semi-solid material for a casting process, said method comprising the following steps:

heating a metal alloy until it reaches a molten state;

clamping a thermal jacket around an alloy-receiving vessel;

transferring an amount of said metal alloy to said vessel;

cooling said amount of metal alloy in said vessel;

applying an electromagnetic field to said amount of metal alloy for creating a flow pattern of said metal alloy within said vessel while said cooling continues in order to create a slurry billet; and

discharging said slurry billet from said vessel into a shot sleeve of a casting machine.

38. (New) A method of producing on-demand, semi-solid material for a casting process, said method comprising the following steps:

heating a metal alloy until it reaches a molten state;

arranging a plurality of stators around an alloy-receiving vessel, said plurality of stators including at least one rotary stator in combination with at least one linear stator;

transferring an amount of said metal alloy to said vessel;

cooling said amount of metal alloy in said vessel;

applying an electromagnetic field to said amount of metal alloy for creating a flow pattern of said metal alloy within said vessel while said cooling continues in order to create a slurry billet; and

discharging said slurry billet from said vessel into a shot sleeve of a casting machine. --